

***Salmonella dublin* Infections From Raw Milk**

TO THE EDITOR: In reading the report in the May 1983 issue by Joshua Fierer, MD, regarding *Salmonella dublin* infections associated with drinking raw milk,¹ I am impressed that nowhere in the article can I find the name of the company that produced the raw milk causing all of these infections. I think it is unfortunate that the author chose not to report the name of the company in the article, as only through public awareness and exposure will there be any likelihood of changing the regulations regarding the certification of raw milk or the institution of social pressures to limit the production of such products.

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REFERENCE

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Dr Fierer Responds

TO THE EDITOR: I quite agree with Dr Schmida that political action will be required if the laws regulating the sale of raw milk in the various states are to be changed. I had hoped that my article would generate concern among physicians who would then be moved to take an interest in this problem. I did not name the dairy that produced the raw milk because, for the reasons I mentioned in the article, it is impossible for any commercial dairy to produce raw milk that is free of *Salmonella dublin*. The problem is inherent in the biology of the infection in cows. Therefore any and all raw cows' milk is a potential hazard, and the number of infections associated with any given dairy will be proportional to the amount of milk they sell.

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Perspective on Risks of Cancer and Genetic Defects

TO THE EDITOR: There have been real, quantifiable risks to health associated with exposure to radiation. In most cases, these risks, after exposures to x-rays and radioisotopes during medical diagnosis and treatment or environmentally, have been very small. Nevertheless, physicians and society as a whole have taken many prudent, often relatively simple and inexpensive steps to reduce exposures to radiation. More can clearly be done to further minimize and control this problem.

Unfortunately, there is an hysteria among some members within our society related to radiation. They are attempting to force the enactment of superprecautionary restrictions and safeguards respecting radiation sources, based upon little if any scientific justification.

Cancer and genetic defects concern us all. However, the annual incidence of these attributable to radiation is extremely low—so low that the risks associated with the alternative technologies that would have to be employed

in lieu of those involving radiation may be equivalent to or greater than those of the technology being displaced.

We need to place the radiation-associated risks of cancer and genetic defects into a better perspective. The past is not prologue. It is, therefore, not appropriate to project past or current incidence rates 1,000, 10,000 or 100,000 years into the future in order to make the hazard to society seem much larger than it is. Yet, this is what is happening today, even though in those time frames, the earth will probably pass through an ice age, suffer a direct hit by a very large meteor, flip-flop its electromagnetic field, see changes in solar radiation emissions and deposit Los Angeles out into the Pacific and closer to San Francisco.

Technology related to cancer and genetics is moving ahead so fast that at least half of our current medical knowledge and treatments based thereon will be completely obsolete in a generation. Moreover, many of the disease problems that we deal with today will become rare. The advances during the past generation have been enormous and the rate of progress today is even faster. Thus, it is virtually certain that cancer and genetic defects will be much less of a future concern than they are now.

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Gravity Inversion Therapy

TO THE EDITOR: Gravity inversion boots are metal and foam rubber devices that clamp around the ankle joint allowing one to hang inverted (−90 degrees) from a horizontal bar. They are being promoted as aids to physical fitness. There have been reports of periorbital petechiae from this practice,¹ but there is a gap in clinical research studies.

After a literature search and personal communication with persons at the National Aeronautics and Space Administration (NASA) and Aerospace Research we found little research has been performed in the (−90 degree) head-down position.²⁻⁴ We found no studies utilizing gravity inversion boots.

In our first study⁵ we noted significant elevations in blood pressure, pulse rate, intraocular pressure and central retinal arterial pressure values upon inversion.

In the above study we subjected 20 healthy volunteers from the Chicago College of Osteopathic Medicine student body to a three-minute period of passive inversion, employing gravity inversion boots. The 18 men and 2 women had no medical history of cardiovascular disease or glaucoma.

The subjects were tested seated and inverted for changes in the above-mentioned parameters. Systemic blood pressure was measured at 45 seconds and at three minutes, pulse rates were measured at one minute and central retinal arterial pressure and intraocular pressure were both measured at three minutes.

Systemic blood pressure increased from 119/74

seated (+90 degrees) to 157/93 mm of mercury upon inversion. Central retinal arterial pressure rose from 45/26 to 105/62 mm of mercury, and intraocular pressure from a mean of 19 to 35 mm of mercury. The MacKay-Marg Model 12 applanation tonometer was employed in conjunction with ophthalmodynamometry to measure central retinal arterial pressures.

TABLE 1.—Comparison of exercise and inversion on central retinal arterial pressure and intraocular pressure. Values shown are mean and standard error for 12 subjects

	Resting Seated	Exercise to Target Heart Rate	Inverted Position
Systolic retinal arterial pressure ..	45 ± 9.15	78 ± 9.54*	118 ± 9.38†
Diastolic retinal arterial pressure ..	26 ± 6.06	51 ± 6.49*	67 ± 8.08‡
Intraocular pressure	18 ± 0.55	18 ± 0.88§	33 ± 0.99

Analysis of variance shows:

* $P < .05$ —that is, exercise compared to resting.

† $P < .05$ —that is, inverted compared to resting.

‡ $P < .05$ —that is, inverted compared to resting but not compared to exercise.

§Not significant compared to resting.

|| $P < .001$ compared to resting or exercise.

We wish to report our follow-up work in this area. We chose 12 subjects at random to determine if similar elevations could be induced by rigorous exercise (pulse rate > 160 beats per minute).

We found that exercise did not significantly raise intraocular pressure above resting values, and that although central retinal arterial pressure did rise from 45/26 to 78/51 mm of mercury, the increase was significantly less than the rise seen upon inversion (from 45/26 to 118/67 (see Table 1 and Figure 1).

Since the inverted values could not be attained no matter how intense the exercise program in the upright (+90 degree) posture, we speculate that extended periods of head down (−90 degree) inversion could prove to be dangerous in some patient populations, such as those with glaucoma, hypertension, uncompensated congestive heart failure, carotid artery stenosis, hiatal hernia or spinal instability, persons receiving anticoagulants or aspirin therapy, those above age 55 or those with a family history of cerebrovascular accidents.

Since there are now more than a million people using these devices and more than 15 manufacturers of gravity

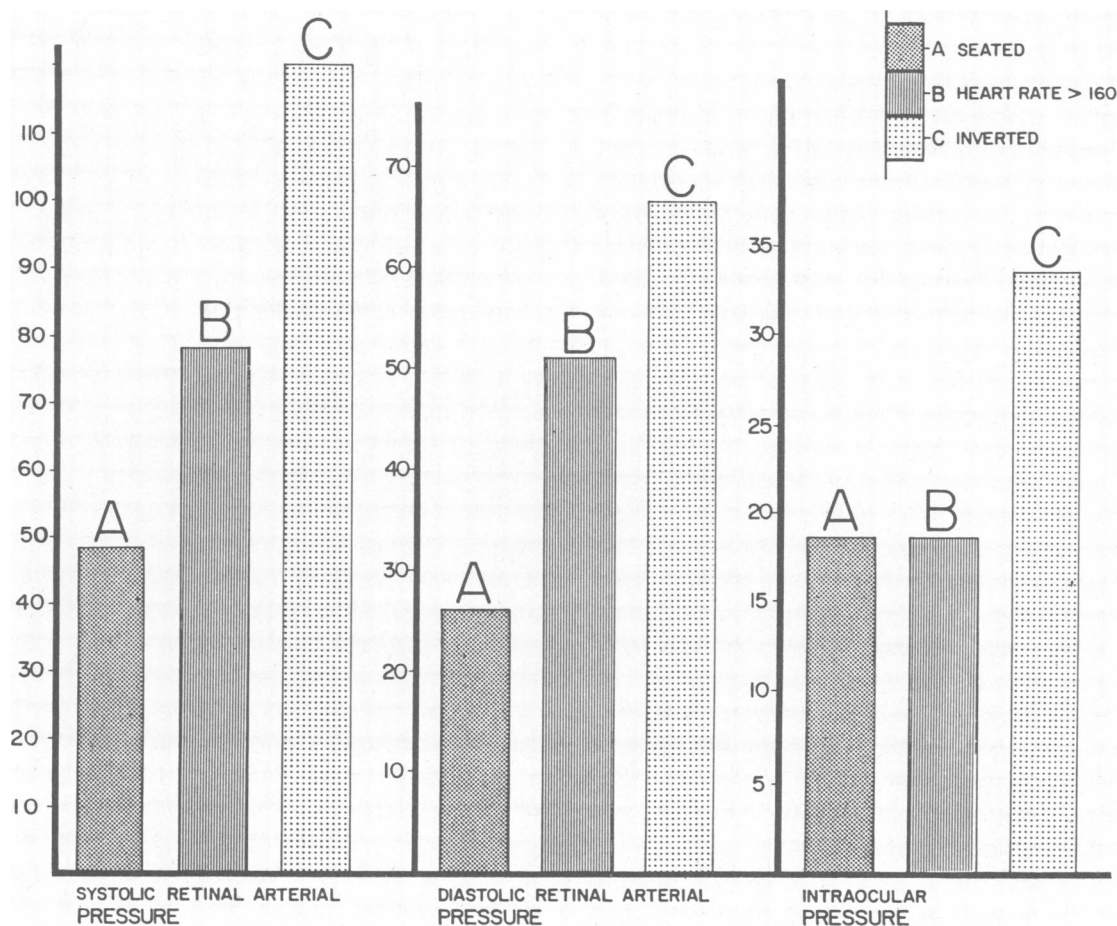


Figure 1.—Comparison of retinal arterial pressure and intraocular pressure: Resting (A), during exercise (B) and during inversion (C). Inversion values were significantly higher than resting values in all cases and significantly higher than exercise values in all cases except diastolic retinal arterial pressure. Intraocular pressure did not rise during exercise.

inversion systems, physicians should be made aware of the potential risks associated with inversion procedures.

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Misleading Blood Pressure Readings

TO THE EDITOR: In recent years the control of hypertension has assumed great importance in the therapy and prevention of stroke, heart attacks and renal disease. However, during the past few years it has been called to my attention in several instances that there is an important defect in the technique of taking blood pressure and almost all physicians and nurses are not aware of it.

The first such instance occurred several years ago when one of my patients with hypertension was found to have a normal to low pressure reading when taken by a nurse at the hospital before a minor outpatient surgical procedure. I had just seen him a few days before in my office and he was mildly hypertensive. Then I had several patients who take their own blood pressure readings at home and they reported them as

quite normal, but, again, in the office the patients were mildly hypertensive.

This latter state has been attributed by some to office anxiety (*AMA News* Feb 26, 1982, p 26).

Another situation involved patients taking their blood pressure on a machine at a drugstore or supermarket, and invariably those readings were lower than my office readings.

The original event led to the discovery of a common denominator. Being a bit upset over that initial patient's normal-to-low reading, I accompanied him to the hospital and asked the nurse to recheck his pressure in my presence. The patient was seated and the nurse stood at his side; she raised the patient's arm and held it just below her armpit, and proceeded to take his blood pressure and, sure enough, the reading was normal. Then I requested that the nurse repeat the blood pressure test, this time with the patient's arm at his side. In order to avoid bending over and straining her back, the nurse pulled up a chair and took the pressure again and to the surprise of all the reading was identical to my office reading.

The pattern became clear. I recalled when I recently had to go for an insurance physical, the physician had me seated on the edge of the examining table, and held my arm in the crook of his arm while reading the blood pressure; it was the lowest reading I had had in years.

When questioning the patients who took their own home readings, invariably the recordings were taken with their arms on the breakfast table. And the drugstore readings are done with the arm not at the side, but extended forward about 30 to 40 degrees. Whenever I take a blood pressure it is always with the patient's arm at his or her side.

TABLE 1.—Blood Pressure Readings in 11 Patients

Patient	Age, Sex	Blood Pressure Medication	Arm in Heil Position (mm of Hg)	Arm at 90 Degrees (mm of Hg)	Arm at Side (mm of Hg)	Patient Bent Over (mm of Hg)
1	68, ♀	0	135/82	138/88	145/90	153/112
2	57, ♀	0	90/55	95/65	105/70	128/87
3	39, ♂	0	100/55	117/60	120/63	132/85
4	62, ♂	0	130/75	148/80	150/85	170/98
5	22, ♀	0	110/70	118/78	128/82	148/105
6	60, ♂	metoprolol tartrate (Lopressor), HCTZ	108/70	118/78	128/83	135/95
7	52, ♀	amiloride HCl-hydro- chlorothiazide (Moduretic)	130/85	142/95	148/92	150/105
8	50, ♀	metoprolol tartrate (Lopressor)	108/70	123/78	125/80	138/100
9	50, ♂	metoprolol tartrate (Lopressor), HCTZ	100/60	115/74	128/86	130/100
10	66, ♀	methyldopa (Aldomet), HCTZ	120/60	128/80	140/85	150/100
11	29, ♂	nadolol (Corgard)	105/65	122/78	138/95	140/95

HCTZ = hydrochlorothiazide